RGR-0062

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Price et al	) Group Art Unit: 1771
Serial No.:	09/916,116	)
Filed:	July 26, 2002	) Examiner: V. Chang
For:	COMPRESSIBLE FOAM TAPES AND METHOD OF MANUFACTURE THEREOF	)

DECLARATION

I, Brett W. Kilhenny declare as follows:

1. I am a co-inventor of the above-referenced patent application.

2. I have read and understood the application and the Final Office Action dated March 4, 2003. I have further read and understood U.S. Patent No. 3,839,087 to Birchall et al.

3. Flexography tapes comprising, for example, polyethyleneterephthalate (PET) reinforcing films and polyurethane compressible layers can delaminate upon their removal from the printing cylinder/printing plate. Such delamination is highly disadvantageous, causing lost time and inefficiency in the printing process.

4. A sample of a flexographic tape comprising such a PET reinforcing film and a polyurethane compressible layer is attached hereto as EXHIBIT 1. Visual examination of this and other delaminated samples indicated that delamination apparently occurred as a result of insufficient bond strength between the reinforcing film and the compressible layer. However, the data below are not consistent with this mechanism, and the inventors hereof have discovered that such delamination likely occurs due to weak cohesive strength at the surface of the PET film (Specification, page 2, lines 10-11).

5. Two scanning electron micrographs of the surfaces of the delaminate film were obtained and are attached hereto as EXHIBIT 2. Micrograph 1A shows the surface of a delaminated polyurethane layer (900 X), and Micrograph 1B shows the surface of a delaminated PET layer (900 X). Neither of the surfaces is smooth, and the "onion skin" skin appearance indicates that delamination occurred as a result of cohesive failure of the PET.

6. Results of Electron Spectroscopy for Chemical Analysis (ESCA) of the two surfaces are reproduced below:

	Carbon Chemistries (relative %)			
Sample	**C-C, C-H**	**C-O**	**C=O**	**O-C=O**
PET Control	74	13	--	13
PUR Control	56	36	2	6
Delaminated PUR Surface	67	20	--	14
Delaminated PET Surface	67	18	--	15

As may be seen from the above data, the surface of the polyurethane layer exhibits signals indicative of the presence of polyester groups, and is, in fact, remarkably similar to the surface of the PET (which is a polyester).

7. The inventors hereof further washed the surface of the PET film, prior to casting of the polyurethane layer, with a variety of solvents, including alkanes such as hexane, ketones such as methyl ethyl ketone, and acetates such as ethyl acetate. Such washing would be expected to remove any contaminants from the surface of the PET film, as well as monomeric or oligomeric PET species that might cause the observed delamination. Such washing was found to be ineffective in preventing the observed delamination.

8. The above data indicate that insufficient bond strength between the polyurethane foam layer and the reinforcing film is probably not the source of delamination, but rather occurs because of a cohesive failure of the PET film. A sample of a foam tape comprising a PET reinforcing film, a low melt point copolyester heat seal anchoring layer and a polyurethane compressible layer in accordance with the present invention is attached hereto as EXHIBIT 3. Using the crosshatch and peel test described at page 18 of the instant Specification shows that the polyurethane foam tears before the foam and the reinforcing layer separate.

9. Use of an anchoring layer between the compressible polyurethane foam layer and the reinforcing layer thus provides unexpected results, in that anchoring layers are generally used to improve bond strength between two layers, but here apparently increases

the cohesive strength of the reinforcing layer (See also Table 1 of the Specification). As pointed out by the Examiner in the Office Action, an increase in cohesive strength of the reinforcing layer itself is unlikely. However, and as discussed in the Office Interview, the inventors theorize that use of the anchoring layer protects the reinforcing layer from delamination.

10. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or document or any patent resulting therefrom.

Date: July 3, 2003

Brett W. Kilhenny

EXHIBIT 1

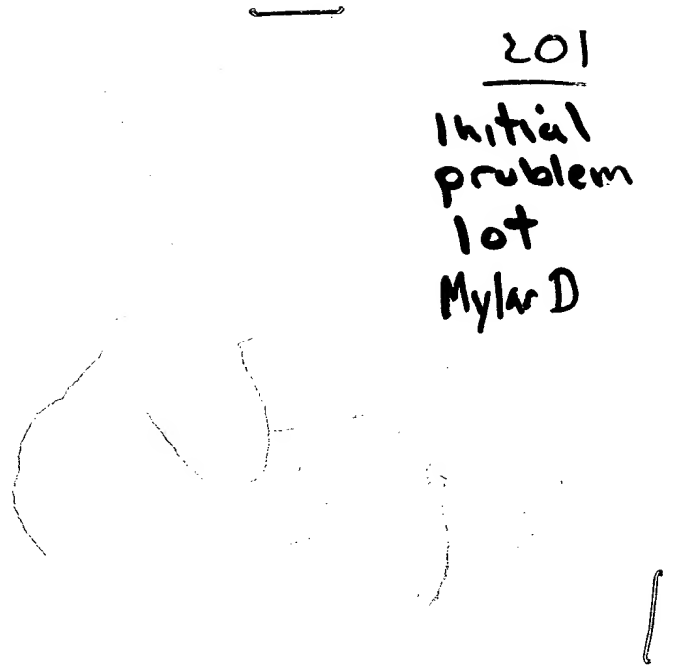
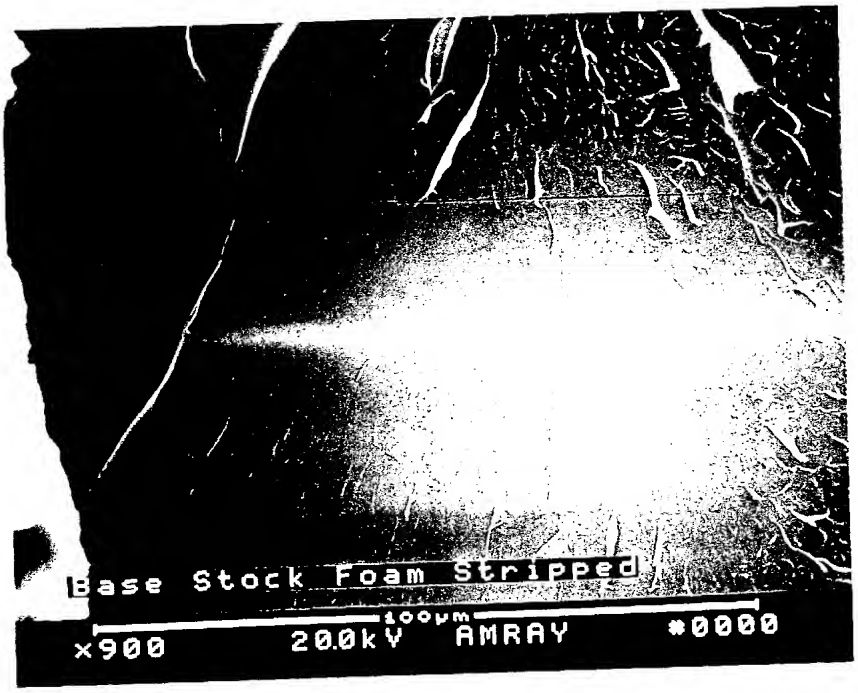
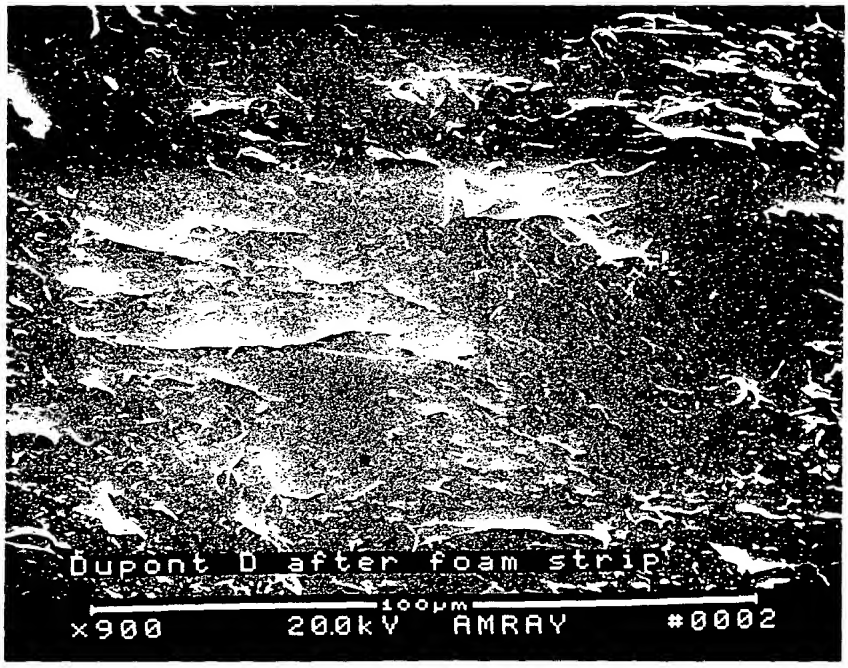


EXHIBIT 2



1A



1B